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Boyne

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(54) **SPRAY DEVICE**

(76) Inventor: **Candice Alice Boyne**, Los Angeles, CA (US)

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(21) Appl. No.: **13/064,678**

(22) Filed: **Apr. 6, 2011**

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Related U.S. Application Data

(60) Provisional application No. 61/322,786, filed on Apr. 9, 2010.

(51) **Int. Cl.**

B65D 83/30	(2006.01)
B65D 83/20	(2006.01)
B05B 3/02	(2006.01)

(52) **U.S. Cl.**

CPC ***B65D 83/201*** (2013.01); ***B65D 83/207*** (2013.01); ***B65D 83/303*** (2013.01); *A45D 2200/057* (2013.01); *A45D 2200/1081* (2013.01); *B05B 3/025* (2013.01); *B65D 83/205* (2013.01)

(58) **Field of Classification Search**

CPC A45D 2200/057; A45D 2200/1081; B65D 83/201; B65D 83/205; B65D 83/207; B65D 83/303; B05B 3/00–3/18; B05B 12/00–12/149

USPC 239/337, 375, 525, 532

See application file for complete search history.

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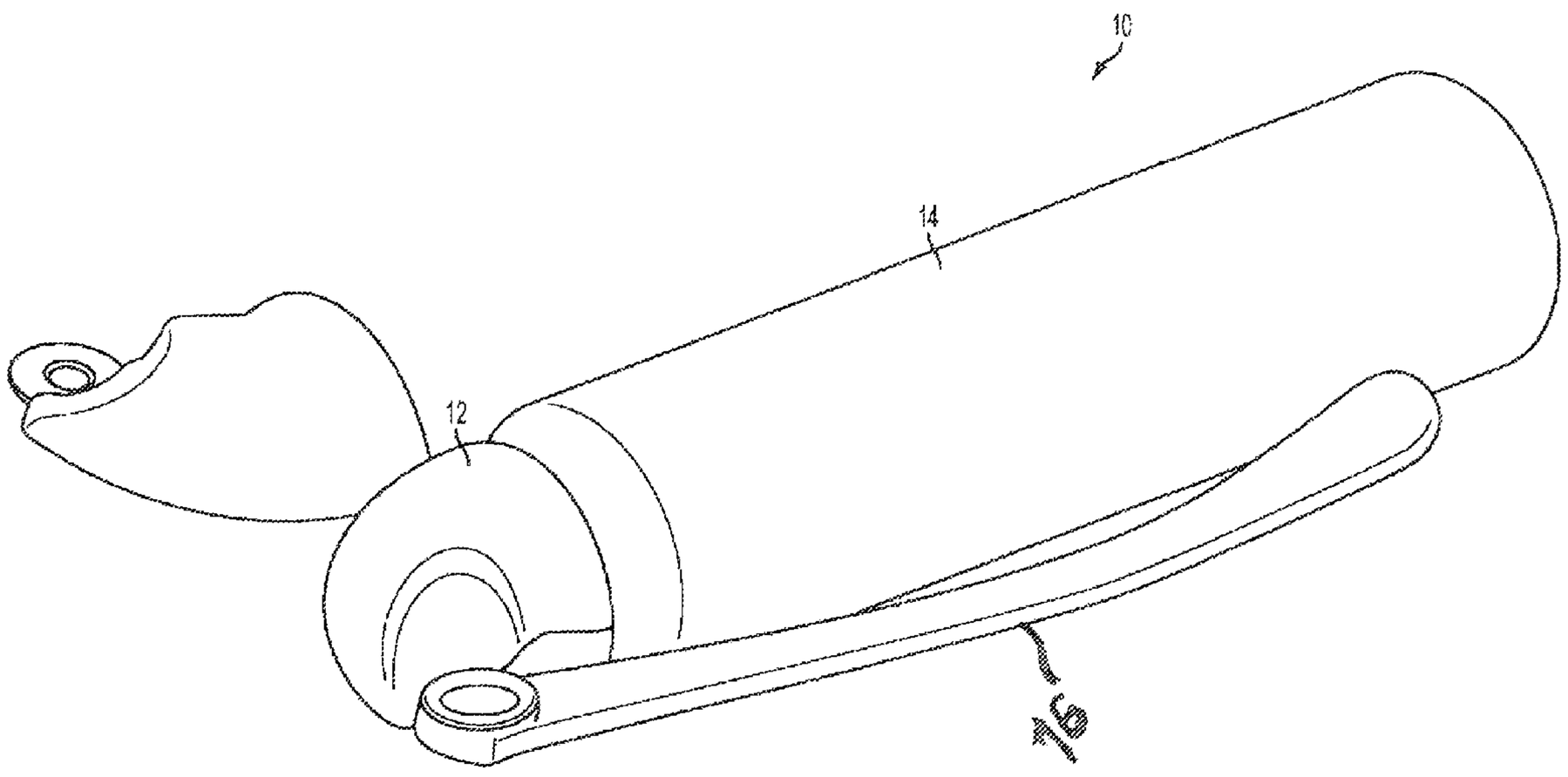
Primary Examiner — Arthur O Hall
Assistant Examiner — Juan C Barrera
(74) *Attorney, Agent, or Firm* — Gottlieb, Rackman & Reisman, P.C.

(57) **ABSTRACT**

An apparatus for delivering liquid includes a wand with a nozzle, a toggle switch, and a supply canister for delivering self-tanning and sun-tanning solutions to a human body. The wand may pivotably attach to a cap attached to the supply canister containing the chosen liquid to be delivered without the necessity of an exposed external tube suspended between the wand and the supply canister.

6 Claims, 10 Drawing Sheets



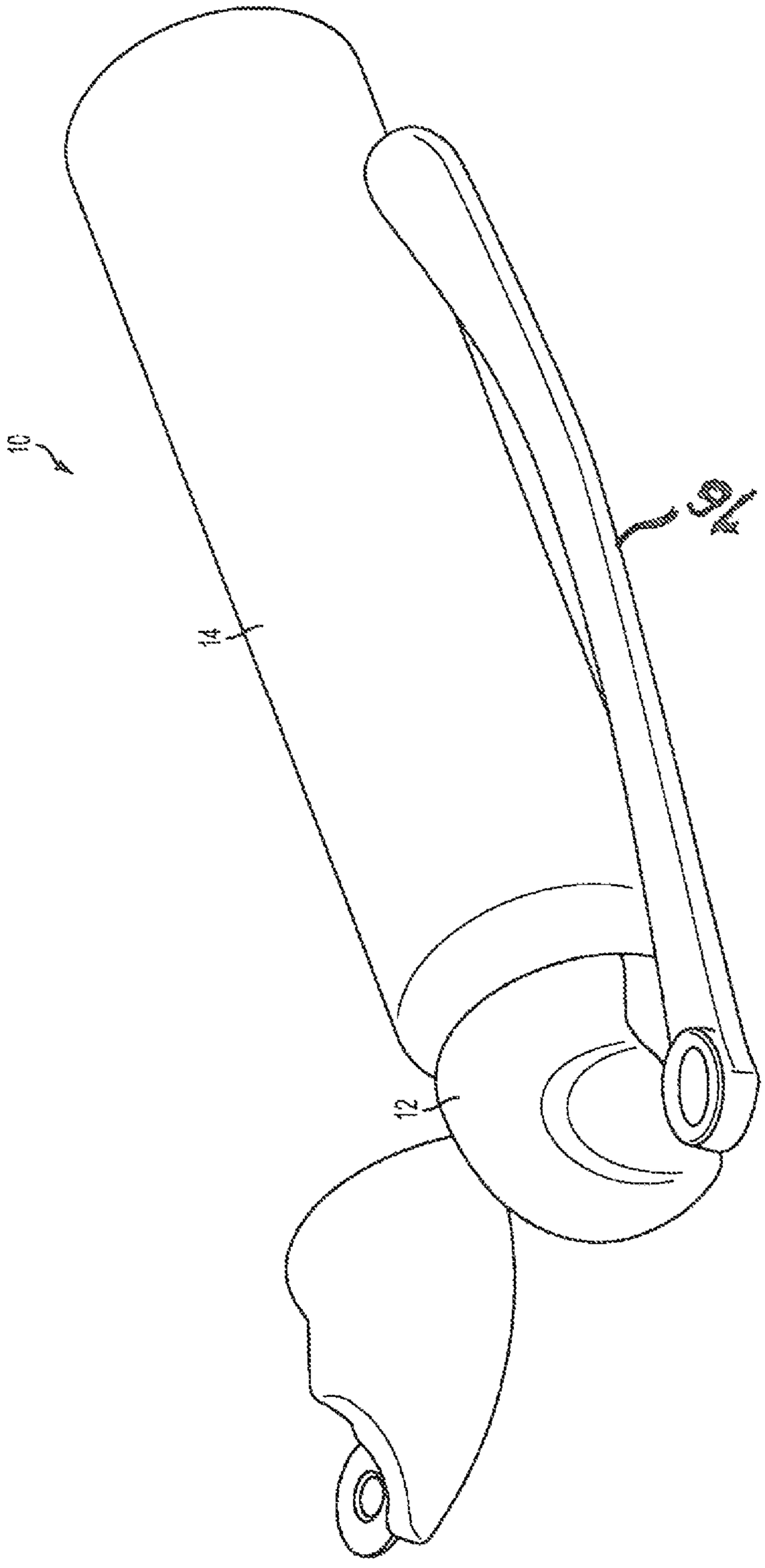


FIG. 1

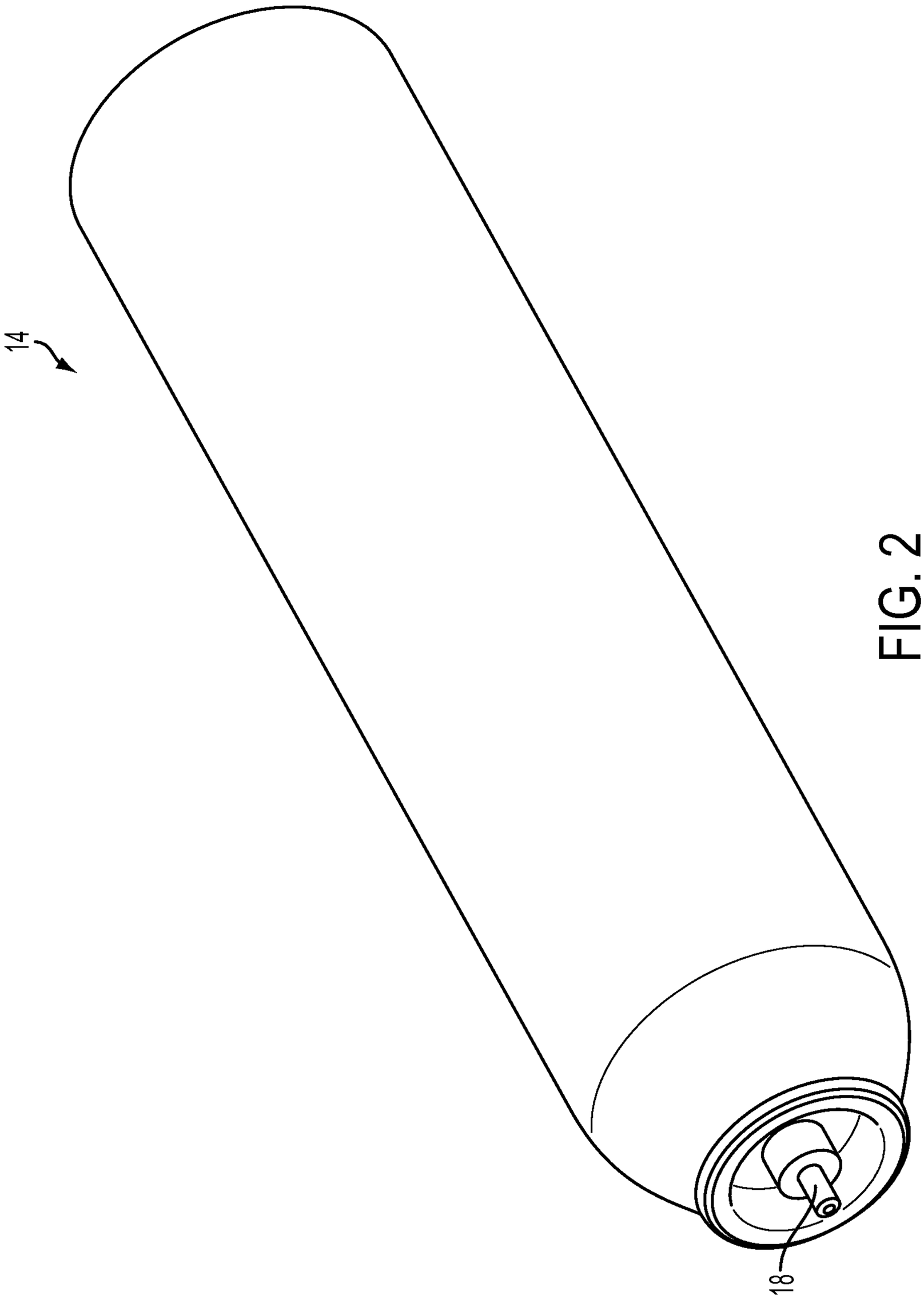


FIG. 2

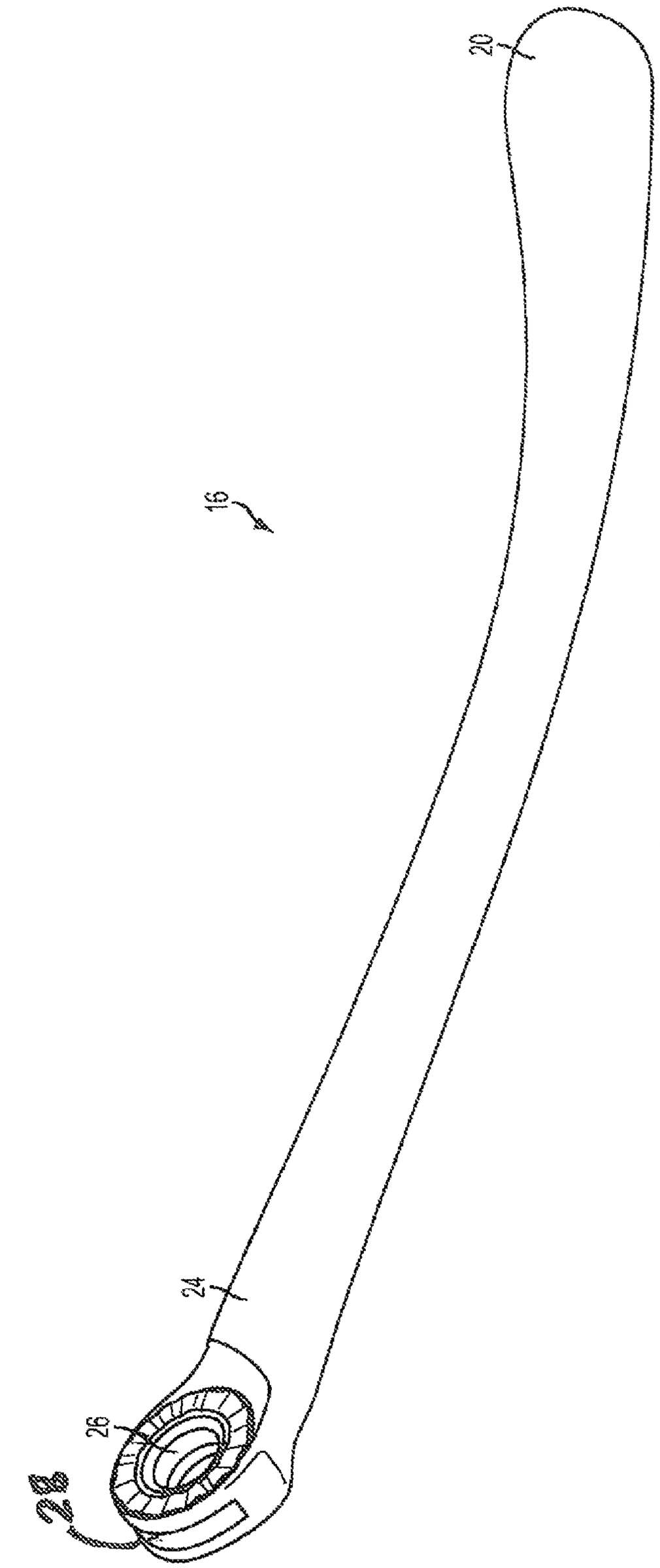


FIG. 3

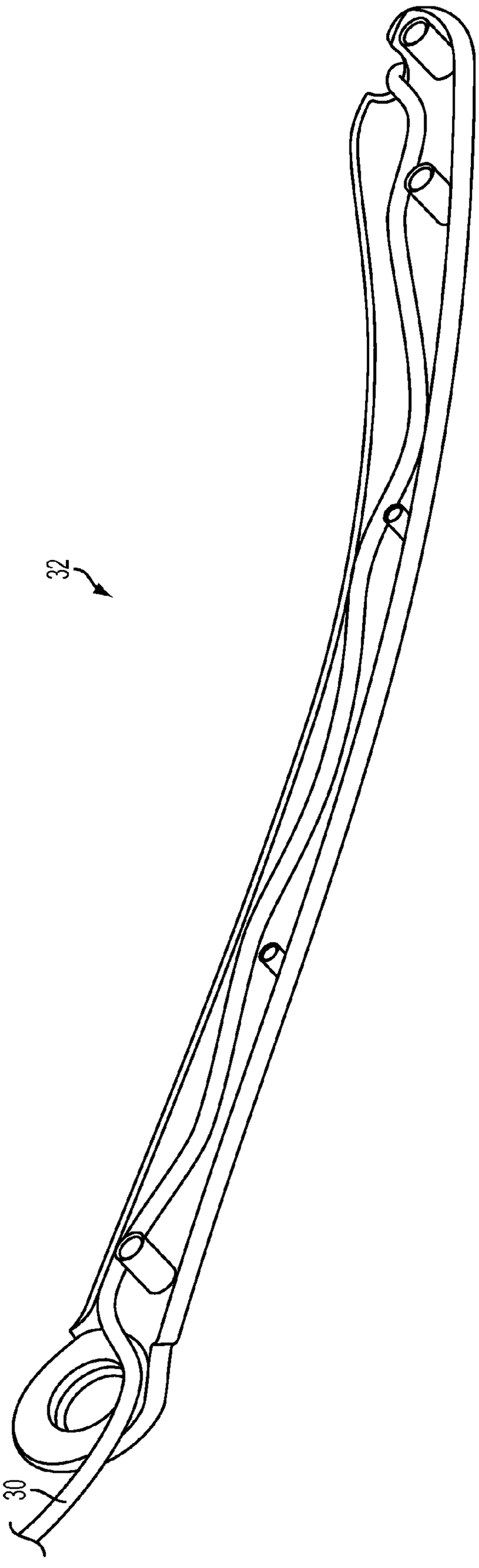


FIG. 4

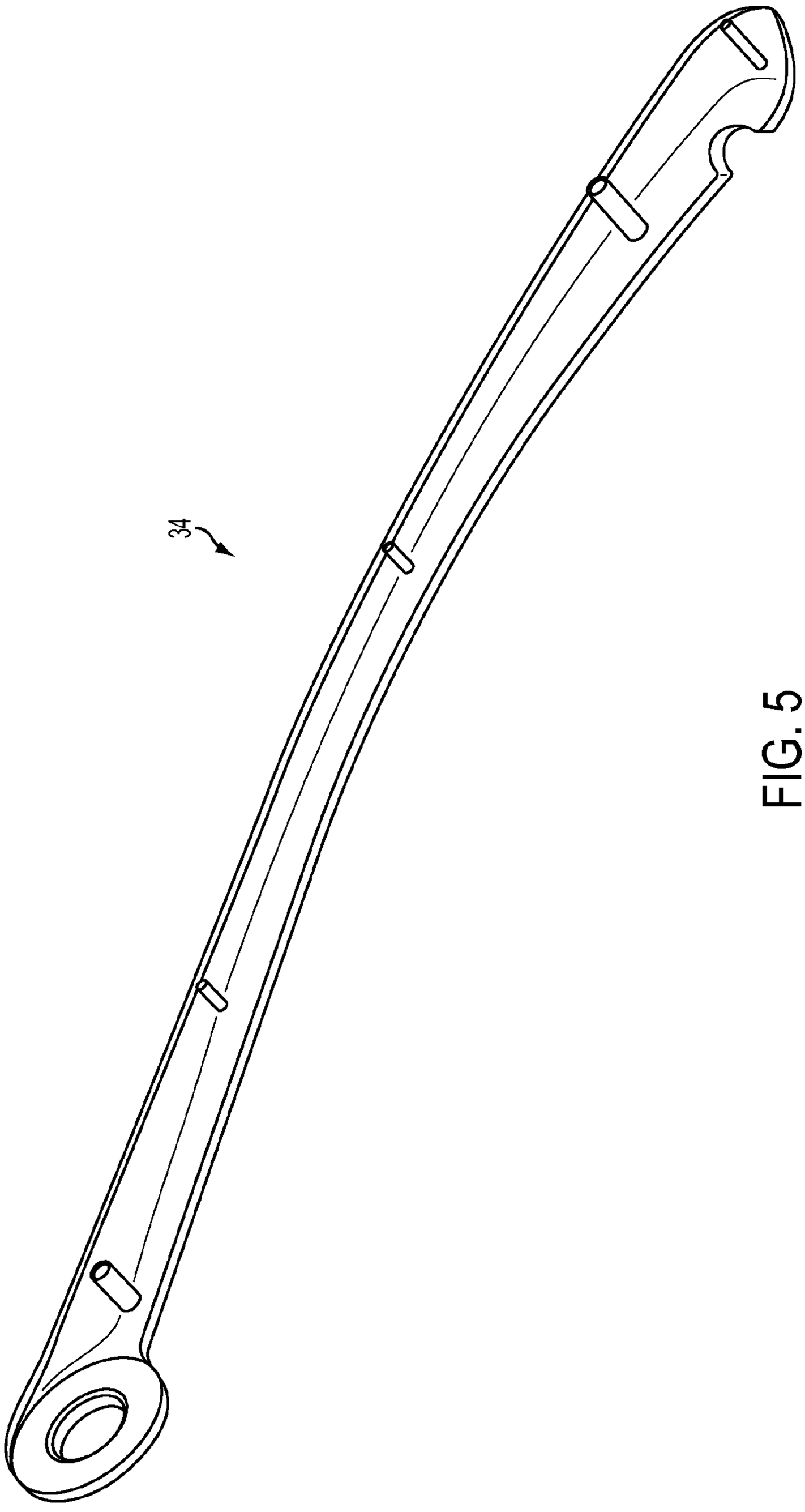


FIG. 5

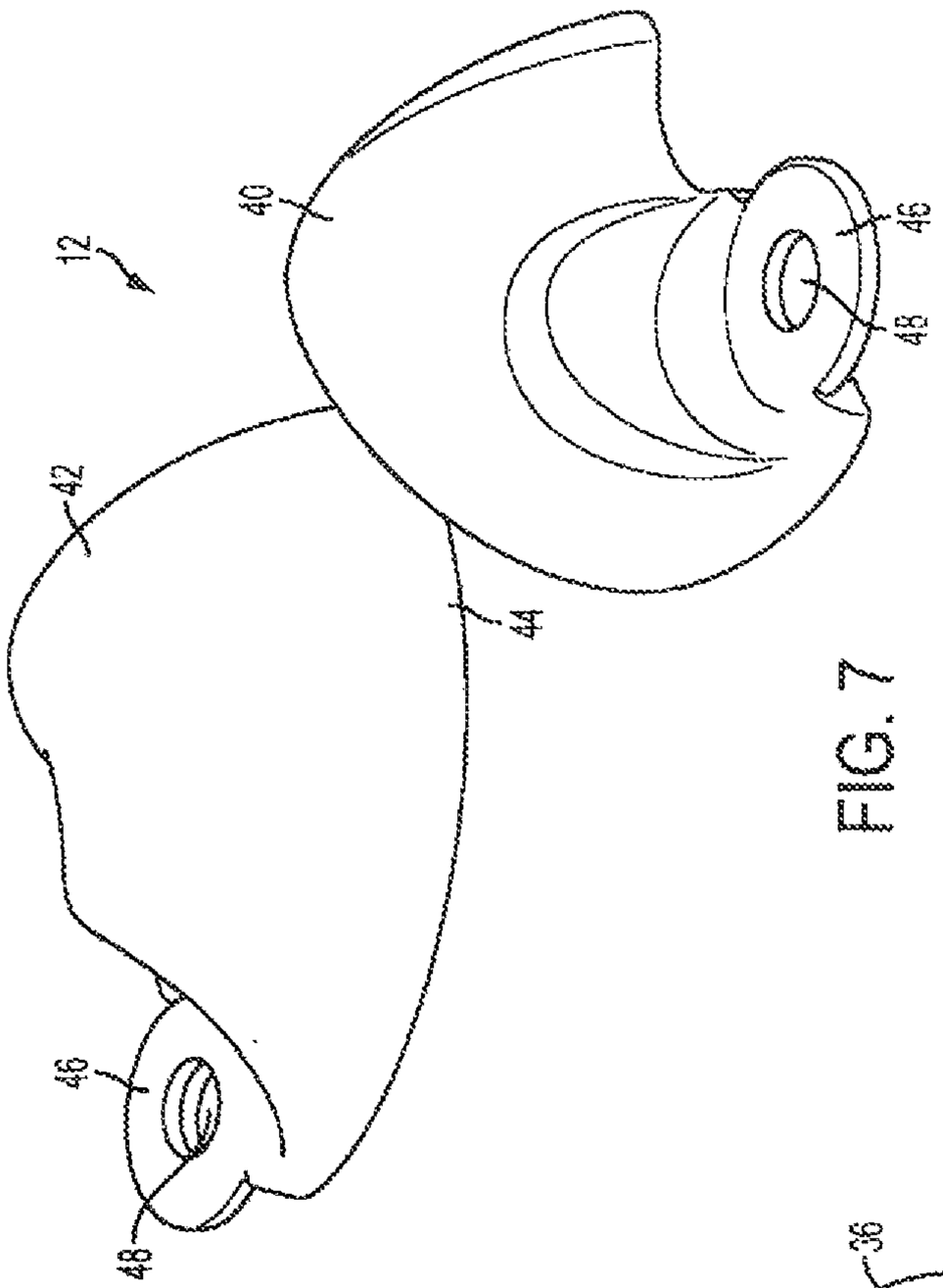


FIG. 7

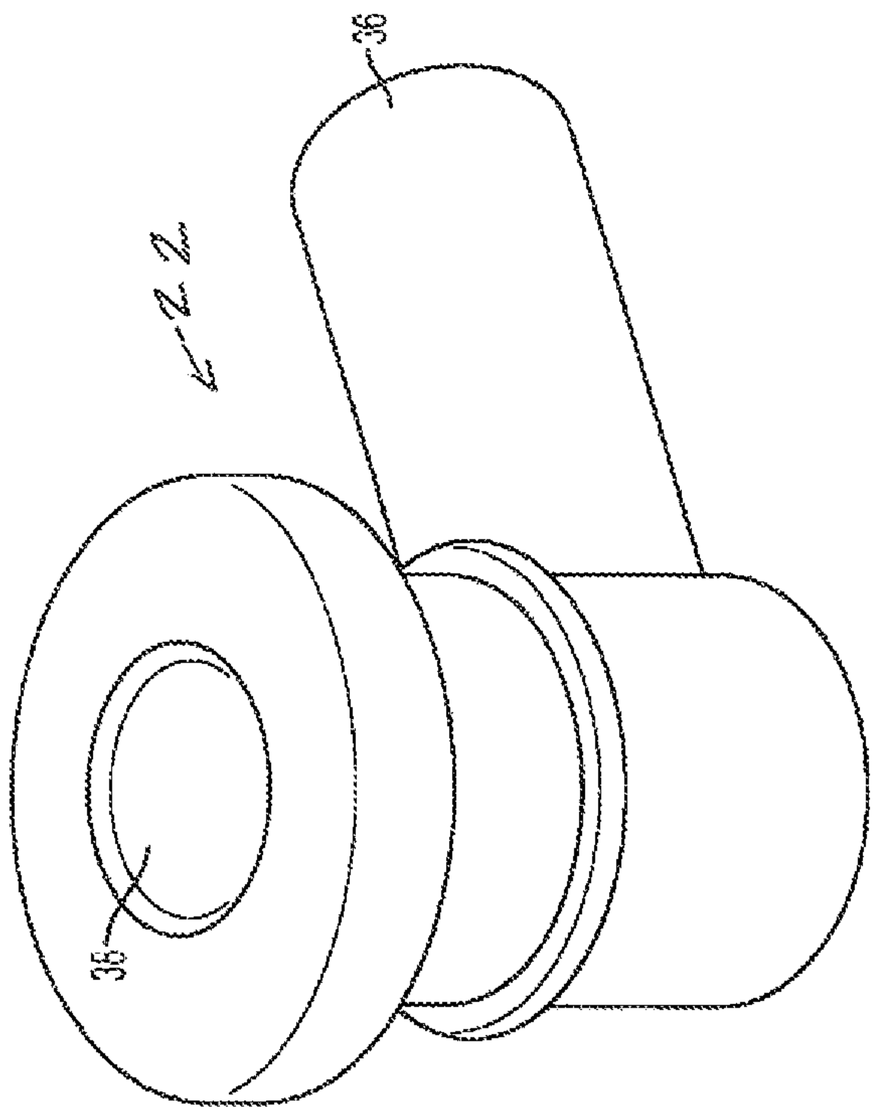


FIG. 6

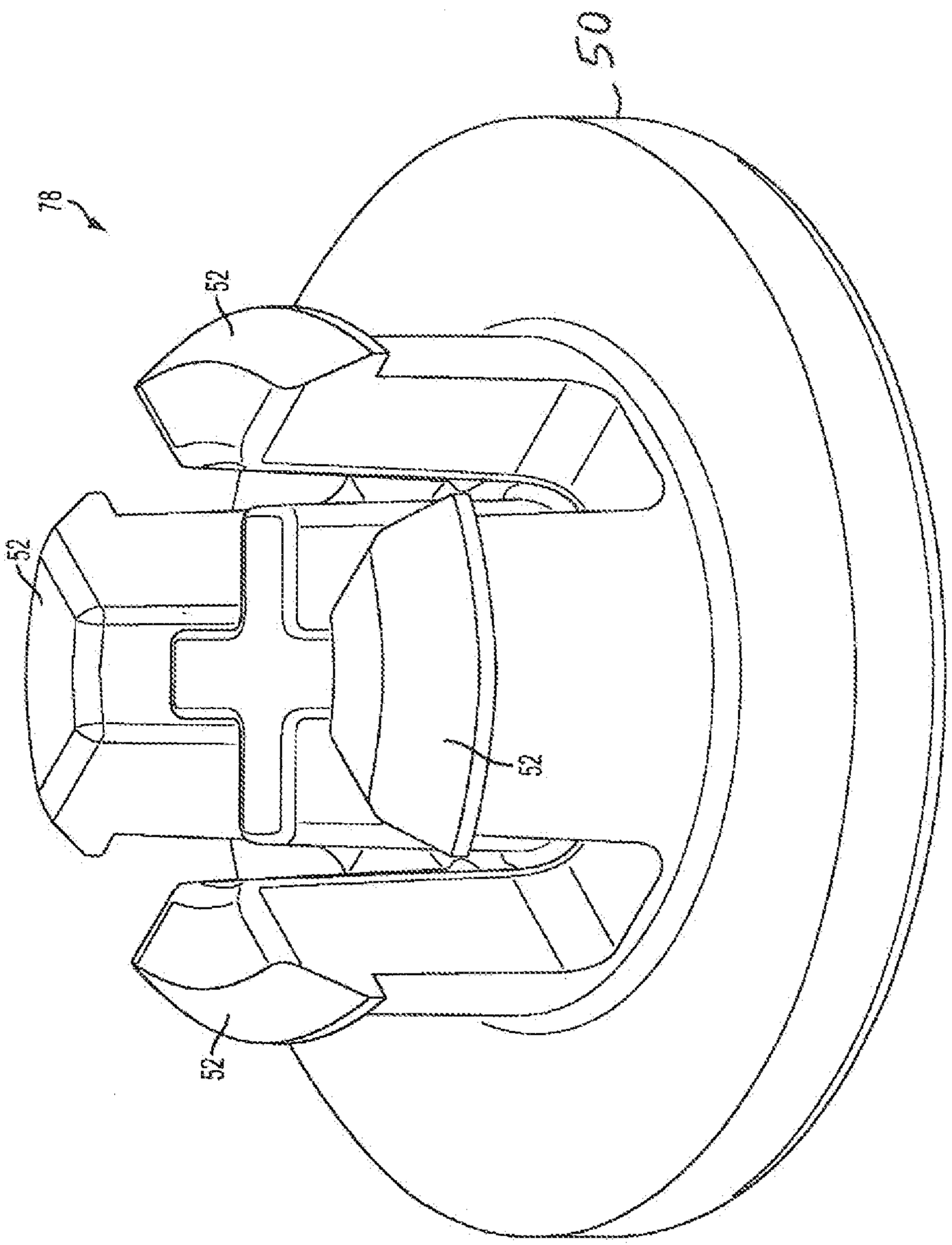


FIG. 8

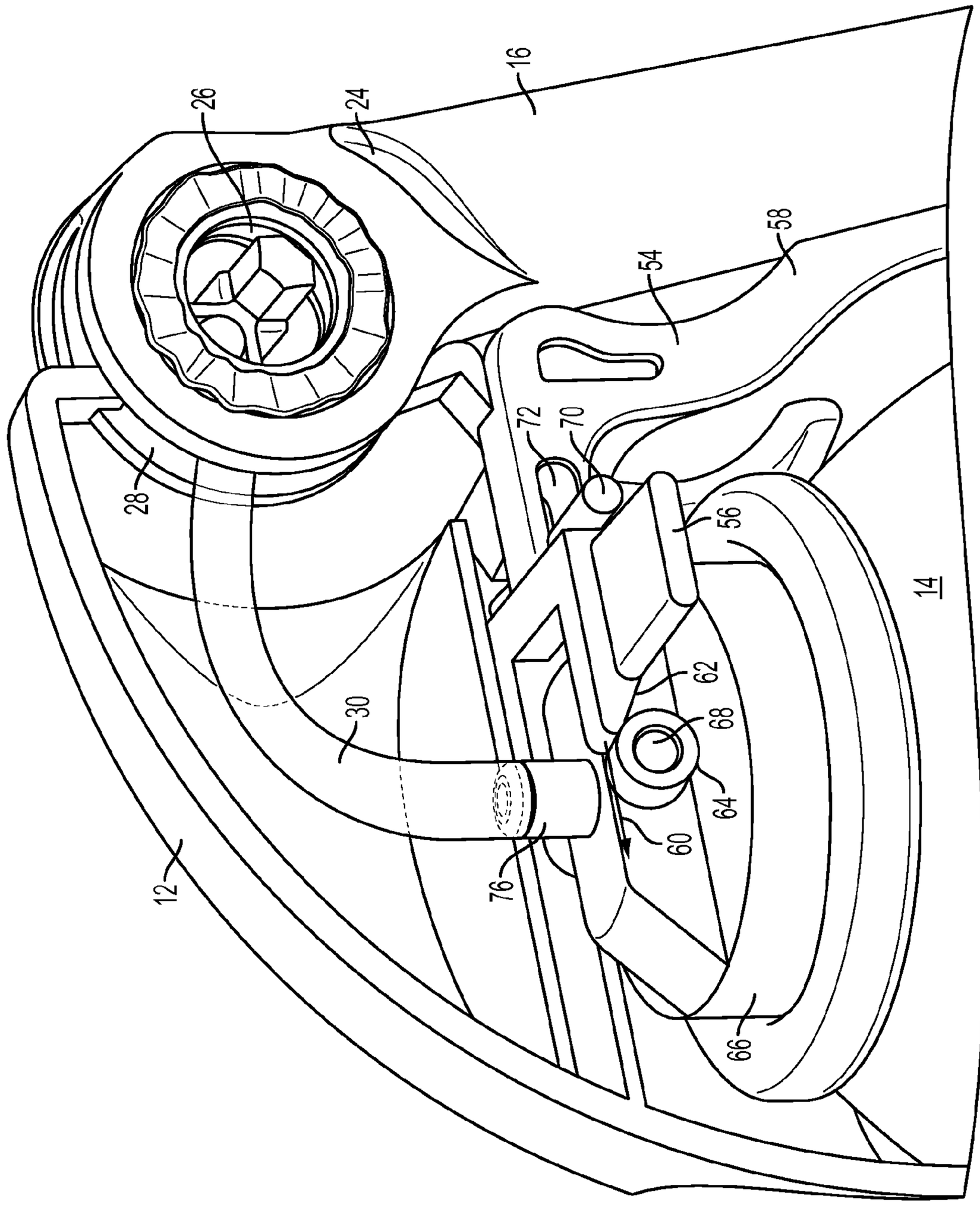


FIG. 9

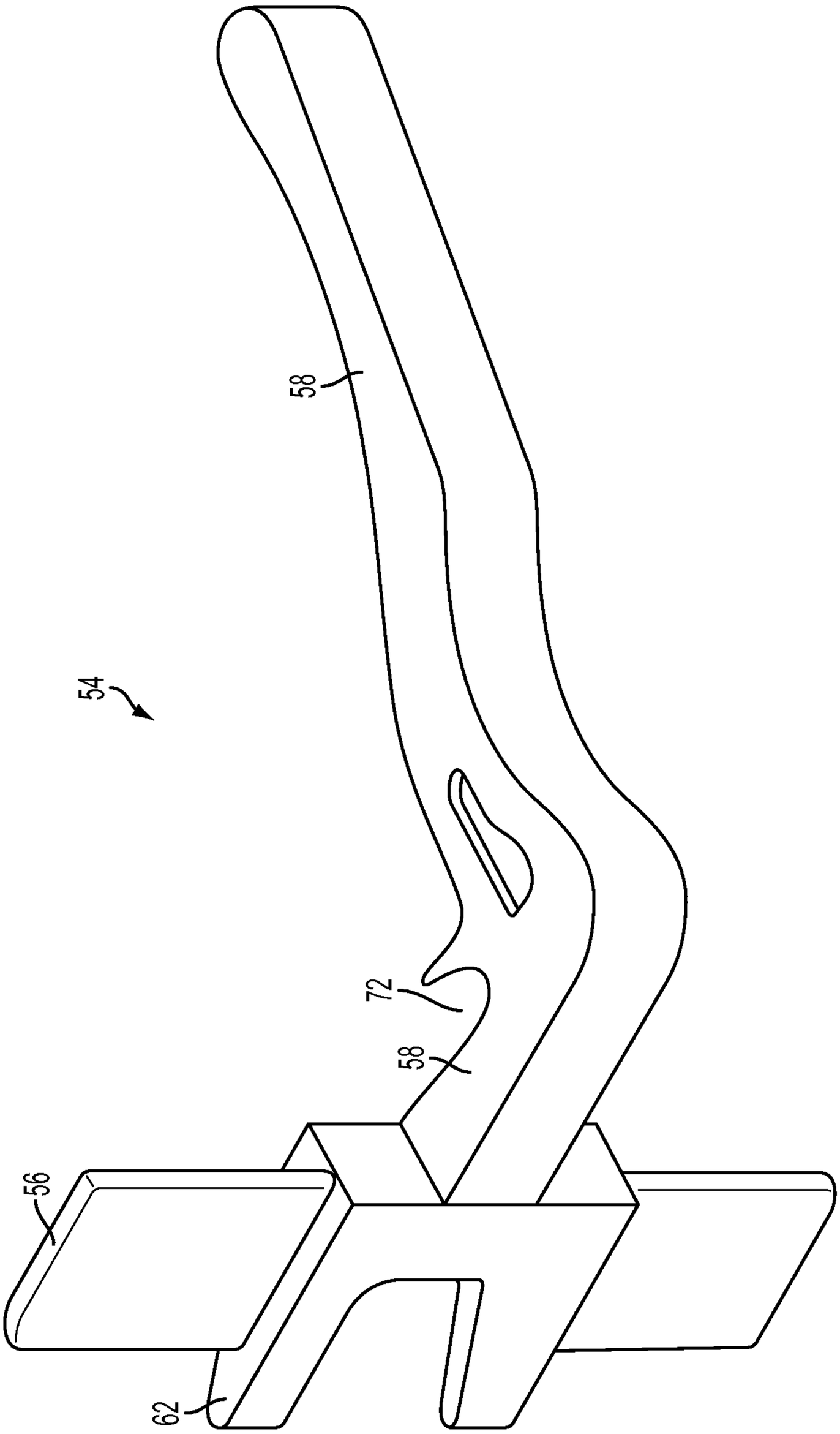


FIG. 10

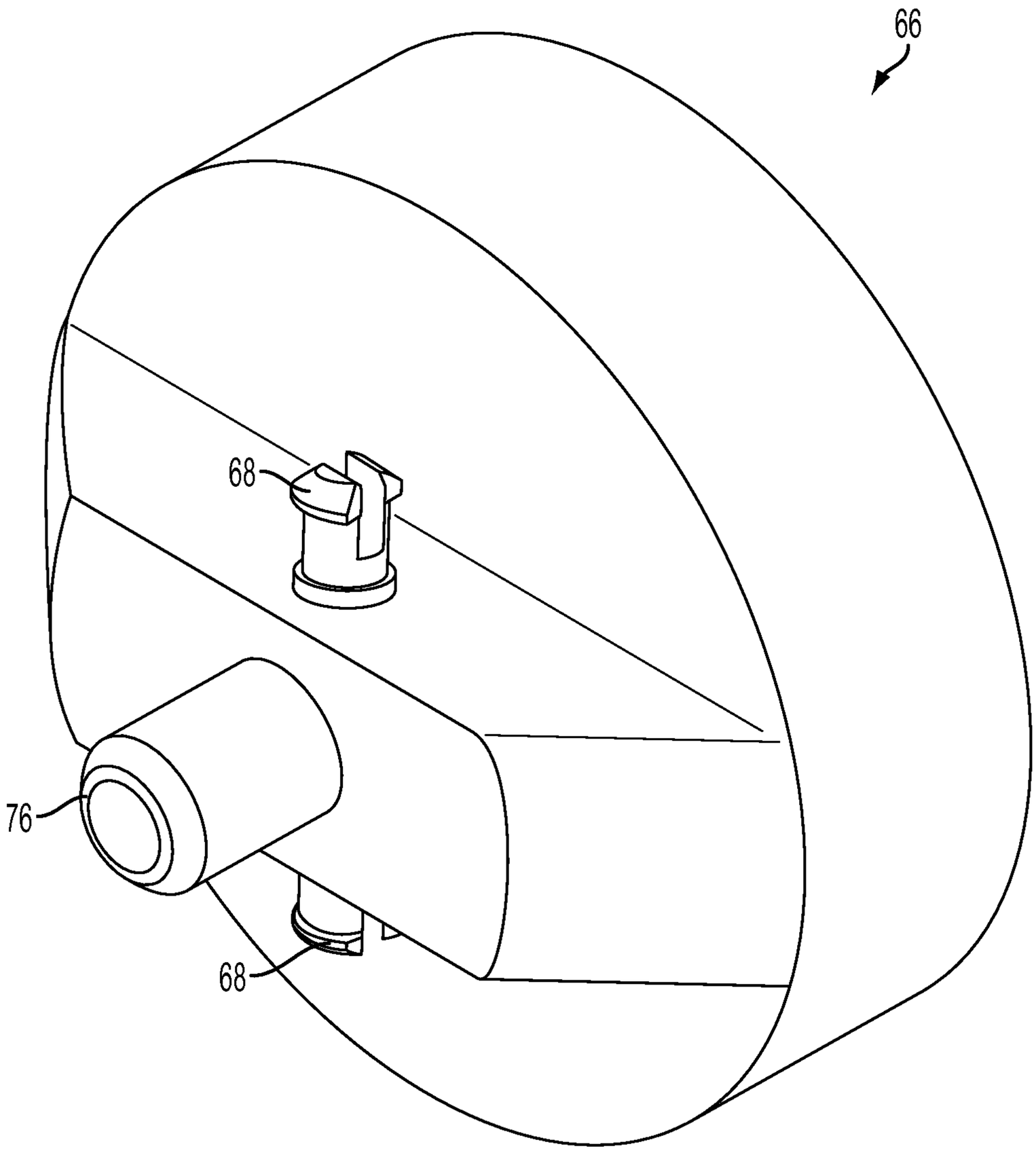


FIG. 11

SPRAY DEVICE

This application claims priority to provisional application 61/322,786 filed Apr. 9, 2010

BACKGROUND OF THE INVENTION

The present invention generally relates to apparatus and methods for the delivery of liquid, and more specifically, to the delivery of spray tanning solutions by self-application.

With an increasing concern for health and safety, the advent of sunless tanning sprays has proven to be a significant advantage. However, the use of regular spray nozzles do not provide even application of the solution, nor do they facilitate the application of the solution on harder to reach places, particularly in cases of self-application.

In many other applications, pressurized spray devices provide more even application, but are cumbersome with the interference of long tubes used to convey the solution to the applicator or motors to provide pressurization. In many instances, the containers containing the tanning solution are separate from the applicator, therefore restricting the ability to move or ideally position the applicator, particularly during self-application. Likewise, the nozzles or applicators which provide a stream of tanning solution may be difficult to manage.

For example, one portable spray device as described in U.S. Patent Application No. US2004/0050962 A1 utilizes a cylindrical metal canister, similar to a propane tank, containing a propellant and a liquid. A long tube extends from the canister to a sprayer. The pressure allows nozzles in the sprayer to provide fluid in the form of a steady mist. The large size of the canister that encloses the propellant and liquid dictates that the device remain stationary on the ground. Therefore, only the nozzles may be easily manipulated.

U.S. Pat. No. 4,407,124 provides another example of a spray system wherein several reservoirs resembling aerosol canisters contain a liquid, and the reservoirs are held in pouches fixed on a belt of the user. A long coiled hose extends from a valve on the reservoir being used to a nozzle for spraying. Although the spray system is portable, the necessity of the pouch and belt may limit the user's maneuverability.

As further example of existing spray devices U.S. Patent Application No. US 2004/0251272 A1 presents a sunless tanning spray dispenser which includes a rigid outer canister having a valve and a nozzle. A tanning solution and a propellant are housed in the canister which resembles a common aerosol can. Unlike the previous examples, this spray device is unencumbered with long tubes or hoses or a stationary source of liquid. However, the user is limited to spraying only to the immediate vicinity of the canister. Therefore, should the user wish to achieve an even application to both the front and back of the body, the user may have difficulty in reaching certain areas of the back.

As can be seen, there is a need for an improved apparatus and method that can facilitate the application of a solution to various locations on the body while maintaining a steady stream of solution for an even application.

SUMMARY OF THE INVENTION

In one aspect of the present invention, an apparatus for delivering liquid comprises an aerosol supply canister adapted to contain the liquid; a canister cap attached to the aerosol supply canister; a wand pivotably attached to the canister cap; a trigger adapted to release the liquid in the aerosol supply canister; and a tube to carry the liquid to a spray nozzle at a distal end of the wand.

These and other features, aspects and advantages of the present invention will become better understood with reference to the following drawings, description and claims.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view of the delivery device according to an embodiment of the present invention, with a top cover opened;

FIG. **2** is a perspective view of a canister of the device of FIG. **1**;

FIG. **3** is a perspective view of a sprayer wand of the device of FIG. **1**;

FIG. **4** is a perspective view of a right-hand half of the sprayer wand of FIG. **3**;

FIG. **5** is a perspective view of a left-hand half of the sprayer wand of FIG. **3**;

FIG. **6** is a perspective view of an exemplary embodiment of a sprayer tip of the device of FIG. **1**;

FIG. **7** is a perspective view of an opened canister cap of the device of FIG. **1**;

FIG. **8** is a perspective view of a button to pivotably connect the sprayer wand of FIG. **3** with the canister cap of FIG. **7**;

FIG. **9** is a perspective view of the device of FIG. **1** with a portion of the canister cap removed;

FIG. **10** is a perspective view of a trigger of the device of FIG. **1**; and

FIG. **11** is a perspective view of a valve coupler of the device of FIG. **1**

DETAILED DESCRIPTION OF THE INVENTION

The following detailed description is of the best currently contemplated modes of carrying out the invention. The description is not to be taken in a limiting sense, but is made merely for the purpose of illustrating the general principles of the invention, since the scope of the invention is best defined by the appended claims.

Broadly, the present invention provides apparatus and methods for delivering and applying liquids, such as to a human body. For example, the liquids delivered may be suntan lotion, sunscreen, sun-block, self-tanning solution, bronzing liquid, moisturizing lotions, special body sprays, and the like. In particular, the present invention may be used to facilitate self-application of the liquids, as the size and lightweight construction of the delivery device of the present invention enable a user to easily reach various locations on the body.

Unlike the prior art which utilizes a nozzle attached to a long intermediate tube joined to a canister, the present invention incorporates a nozzle and a pressurized supply canister into an integrated, portable spray device while maintaining a distance between the nozzle and supply canister so as to facilitate access to areas which may be difficult to reach. As such, in situations where the user would like to spray her back, the user may hold the wand in an inverted position over her shoulder, and direct it toward her back, thereby reaching areas she might not be able to access with a short nozzle.

The present invention may also eliminate the need for a lengthy exposed intermediate tube between the supply canister and the nozzle. The conventional air-brushing type of liquid delivery systems rely on a short spray gun or nozzle that is typically connected to a supply of compressed air via a lengthy exposed intermediate tube external to the spray gun. Often, the lengthy tube will hang suspended between the spray gun and the canister. An embodiment of the present

invention uses a supply canister for holding liquid at a location remote from a nozzle location. A wand, which contains a tube within, has a nozzle at one end and is connected to the aerosol supply canister. Thus, the nozzle may be manipulated to spray the body at various angles and levels without the interference of external tubes.

FIG. **1** is perspective view of a spray device **10** having a canister cap **12** in an open position. The device **10** may include a supply canister **14** and a wand **16**. The supply canister **14** may contain a liquid, such as a self tanning spray, to be delivered by the device **10**. The liquid may be pressurized within the supply canister **14**. The wand **16** may be pivotably attached to the canister cap **12**, as discussed in greater detail below.

FIG. **2** shows a perspective view of the canister **14**. The canister **14** may have a canister valve **18**. In one embodiment, the canister valve **18** may release liquid from in side the canister **14** by pressing the valve **18** inward toward the body of the canister **14**.

FIG. **3** shows a perspective view of the wand **16**. A distal end **20** of the wand may include a spray nozzle **22** (see FIG. **6**). A proximal end **24** of the wand may include a through hole **26**. The through hole **26** may allow for the wand **16** to be pivotably attached to the canister cap **12**. A slot **28** in the proximal end **24** may permit a tube **30** (see FIG. **4**) to span from within the canister cap **12** to the distal end **20** of the wand **16**.

FIGS. **4** and **5** show a right-hand half **32** and a left-hand half **34** of the wand **16**. The tube **30** may be a continuous length of flexible tubing that may span the length of the wand **16**.

The tube **30** may connect to a tube connection end **36** of the spray nozzle **22**, as shown in FIG. **6**. The spray nozzle **22** may include a spray outlet **38** for delivering the liquid in the canister **14** onto an object, such as a person.

The canister cap **12**, as shown in FIG. **7**, may include, in one embodiment of the present invention, a first half **40** and a second half **42** that may be joined together by a living hinge **44**. Each half **40**, **42** may include a wand attachment member **46**. Each wand attachment member **46** may be formed integrally with the canister cap **12** and may include a through hole **48**. The wand attachment members **46** may sandwich the proximal end **24** of the wand **16**. The through holes **48** may align with the through hole **26** of the wand **16**.

In one embodiment of the present invention, a button member **50**, as shown in FIG. **8**, may be used to secure the wand **16** to the canister cap **12**. The button member **50** may be inserted into through hole **48** of one half **40** of the canister cap **12**. The button member **50** may pass within through hole **26** of the wand **16** and then exit out of through hole **48** of the other half **42** of the canister cap **12**. Tabs **52** of the button member **50** may prevent removal of the button member **50** once inserted to pivotably retain the wand **16** to the canister cap **12**.

Referring to FIGS. **9** through **11**, a trigger **54** may be disposed with a triggering end **56** disposed within the canister cap **12** and a trigger end **58** extending outwardly from the canister cap **12**. The trigger end **58** may be squeezed by the user, as discussed below, to release the liquid from the canister **14**.

The triggering end **56** may move substantially in the direction of arrow **60** when a user squeezes the trigger end **58** of the trigger **54**. A sloped surface **62** of the triggering end **56** may depress rollers **64** disposed on each end of a valve coupler **66**. This depression may cause the valve coupler **66** to move toward the body of the canister **14**, causing the liquid in the canister **14** to be released from a valve coupler male fitting **76**. The valve coupler male fitting **76** may attach to the tube **30** that extends through the wand **16**. The rollers **64** may attach to roller pins **68**.

The trigger **54** may be further secured to the canister cap **12** with a pin **70**. A slot **72** may be disposed within the trigger **54** to allow movement of the trigger **54** in the direction of arrow **60** while limiting movement of the trigger in other directions.

To use the device **10** of the present invention, a user may pivot the wand **16** at a desired angle relative to the canister **14**. The user may then depress the trigger **54** which may cause the sloped surfaces **62** of the trigger **54** to depress the valve coupler **66**. This may cause liquid in the canister **14** to be released from the coupler male fitting **76**, through the tube **30** and out through the spray nozzle **78**.

It should be understood, of course, that the foregoing relates to exemplary embodiments of the invention and that modifications may be made without departing from the spirit and scope of the invention as set forth in the following claims.

What is claimed is:

1. An apparatus for delivering liquid, comprising:
a supply canister adapted to contain the liquid;
a canister cap attached to the supply canister;
a hinging mechanism;
a wand having a proximal wand end and a distal wand end, the proximal wand end attached to the canister cap by said hinging mechanism to allow said wand to be selectively pivoted with respect to said canister cap, said wand defining a chamber extending longitudinally through said wand;
an actuator adapted to release the liquid in the supply canister; and
a tube extending through said chamber and said hinging mechanism and having a proximal tube end operationally connected to said actuator and a distal tube end disposed at said distal wand end to carry the liquid to at said distal wand end.

2. The apparatus of claim **1**, wherein the wand further comprises: a nozzle attached to said tube at said distal wand end for spraying the liquid toward a desired location.

3. The apparatus of claim **1**, wherein the wand includes a tube opening, and the tube extends from the tube opening to the nozzle.

4. The apparatus of claim **3**, wherein the tube opening is located on the proximal end of the wand.

5. The apparatus of claim **1**, wherein the actuator includes a trigger switch located on the canister cap to release or stop the flow of liquid from the canister to the nozzle.

6. The apparatus of claim **1** wherein said canister has a lateral cylindrical surface and said wand is movable between a first and a second position by said hinging member, said wand being disposed adjacent to said lateral cylindrical surface in said first position in parallel with said lateral cylindrical surface.

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